## SMITHSONIAN SIMITHSONIAN AUTUMN 2016

Tails help animals move, mate, and more.

- » Breeding Endangered Birds
- » Animals With Bum Raps
- » Seven Reasons to Vişit

Getting social World Oceans Day







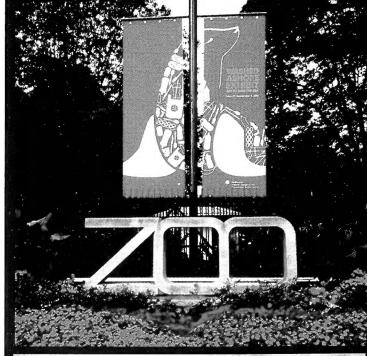


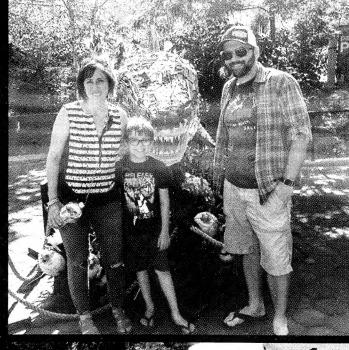










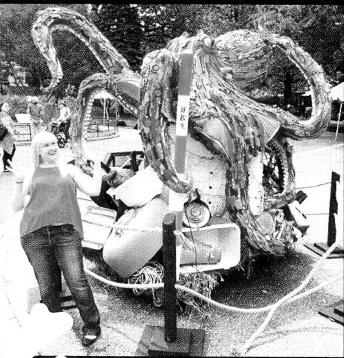






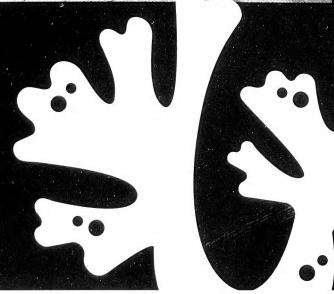




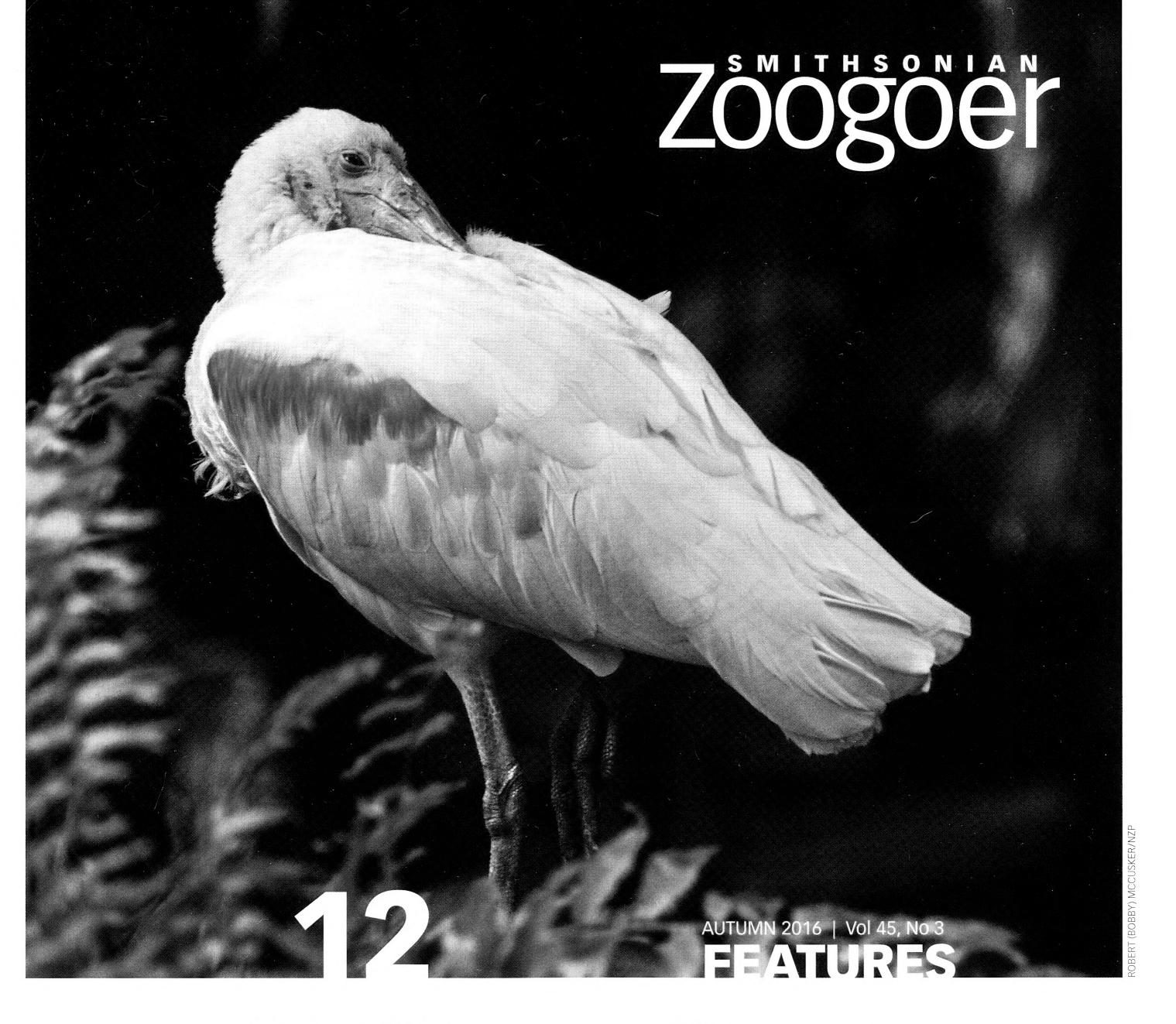




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#### A Tale of Tails

Tails look wildly different among species, and they evolved for wildly different functions to help animals propel themselves, steer, balance, defend against predators, and attract mates.

BY BRITTANY STEFF

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BY CRISTINA SANTIESTEVAN

Cranes—beautiful and balletic—are among the most storied bird species in the world. They're also among the

most threatened.

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## ZOOZOCI ZOOZOCI



is the dedicated partner of the Smithsonian's National Zoological Park. FONZ provides exciting and enriching experiences to connect people with wildlife. Together with the Zoo, FONZ is building a society committed to restoring an endangered natural world. Formed in 1958, FONZ was one of the first conservation organizations in the nation's capital.

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Smithsonian National Zoological Park is located at 3001 Connecticut Ave., N.W., Washington, D.C., 20008-2537. Weather permitting, the Zoo is open every day except December 25. For hours and other information on visiting the Zoo, go to nationalzoo.si.edu.

Membership in FONZ supports the animal care, conservation, and educational work of the Smithsonian's National Zoo. It also offers many benefits: a Smithsonian Zoogoer subscription, discounts on shopping and events, discounted or free parking, and invitations to special programs and activities. To join, call 202.633.2922, or visit fonz.org/join.

#### Membership categories

Green	\$55
Basic	\$60
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Peacocks' wide, fanned-out tails may be the most spectacular in the whole animal kingdom. PHOTO BY MEHGAN MURPHY/NZP

#### ASSOCIATION OFZOOSQ AQUARIUMS

The Smithsonian's National Zoo is accredited by the Association of Zoos and Aquariums.



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#### SINCE I TOOK OVER AS THE DIRECTOR AT FONZ, IT'S BEEN SO REWARDING TO BE REMINDED OF HOW MUCH THE ZOO AND FONZ MEAN TO PEOPLE IN THE

WASHINGTON AREA. The best zoos are typically magical experiences, but somehow it feels like our Zoo stands out in a more magical way. I think part of it is its long history and connection to the D.C.-area community; part of it is its unique, natural beauty and peacefulness; and part of it is knowing that supporting our Zoo means supporting world-leading conservation work.

And FONZ holds a special place in our collective hearts for all these reasons, and the fact that, for many of us, our FONZ membership is both our "easy pass" to the park and our symbol that we care about animals and helping others understand the importance of helping to save these magnificent creatures. Members are proud of the Zoo, and they feel a sense of ownership in it. After all, it's been a local institution since 1889.

But the Zoo and FONZ don't just help create a richer city and community. We also receive a tremendous amount of support from

the community in return. Look at local sponsors for our events. Each year, more than 100 restaurants donate 1,500 gourmet tastings each to make our annual ZooFari event a success. Same with events like Grapes with the Apes and Brew at the Zoo, where wineries and craft brewers bring enough of their offerings to serve hundreds of people.

Beyond local businesses, we also receive tremendous support from larger corporations with ties to the region. Pepco has underwritten ZooLights since we launched the holiday event more than a decade ago. Our media partners donate publicity to help us spread the word about these events. For Boo at the Zoo, sponsoring organizations like Mars donate thousands of pieces of candy and other treats. And myriad other companies make countless contributions.

The net effect from all this generosity? We can create these amazing events that members look forward to attending with friends or family every year. The revenue we get from the tickets and event purchases helps fund the critical educational and world-leading conservation work of the Zoo and Smithsonian Conservation Biology Institute. And the circle goes round.

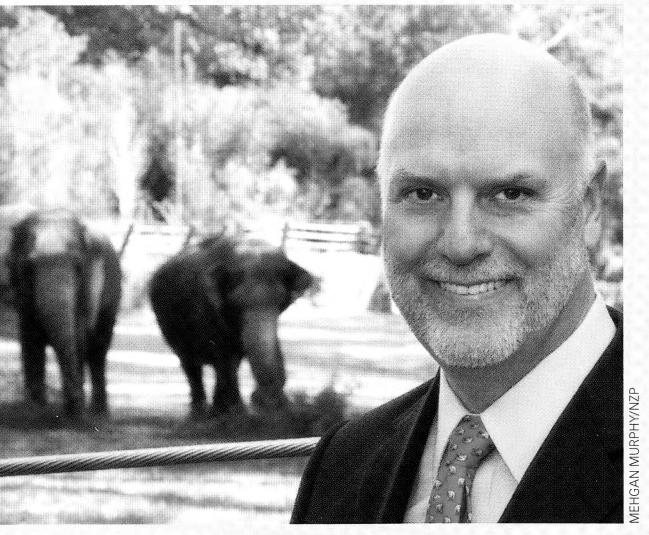
So if you want to know any other ways to support the Zoo—in addition to everything you already do!—be sure to patronize the sponsors you see making contributions to our events. And let them know why. I hope to see you soon at one of our wonderful upcoming events!

Best,

Lynn Mento

Executive Director, Friends of the National Zoo

#### **FROMtheZOO**



#### ZOOS AND AQUARIUMS ARE CONSTANTLY

**EVOLVING.** My colleagues never stop studying, analyzing, and applying new data and theories about animal care science and conservation. Understanding, protecting, and saving species is what makes us all incredibly passionate. Still, people wrestle with the issues of animals in human care and our responsibility as stewards of the planet. Some people even question whether zoos should exist in the modern world. And that's OK, because we ask the same questions of ourselves. These are complex issues, but I believe that zoos have a vital role in educating the public about wildlife and conserving endangered species.

Zoos and aquariums give visitors a direct experience with animals, helping people understand how the wild world works—and our responsibility to protect it. Humans threaten wildlife by degrading habitat, developing land, poaching, and illegal hunting. We are firmly entrenched in the sixth great extinction, now losing species at the greatest rate in the last 65 million years. As

such threats grow, the conservation work that zoos do is often the best way to give some of the most threatened animals a chance.

Conservation has been the heart of the Smithsonian's National Zoo since its founding in 1889, when an iconic American animal—the bison—was on the edge of extinction. The park connects visitors to animals (the "Zoo you see"). We also conduct groundbreaking conservation research to save endangered species at the Zoo and the Smithsonian Conservation Biology Institute in Virginia and around the world (the "Zoo you don't see").

Among other highlights, we've helped reestablish a wild population of black-footed ferrets, the most endangered mammal in the U.S. We breed maned wolves, Eld's deer, brown kiwis, and many more species to preserve their genetic diversity. And, with a little help from some innovative technology, we're tracking the movement, ecology, and behavior of scimitar-horned oryx, which were recently released back into Chad. They had been extinct in the wild since the mid-1980s. In a perfect world, we wouldn't need to do this kind of work, but in the real world, we do—and we're experts at it.

We're proud of our conservation work, but we're not alone. This fall, I will become chair of the Association of Zoos and Aquariums. I'd be honored to take on the role at any point, but the current evolution in zoos makes the organization more relevant than ever. AZA provides accreditation for its members, which adhere to exacting standards in every aspect of zoo keeping.

Should zoos exist? I believe so, along with sanctuaries, nature preserves, research labs, and any other facilities that can help stop the loss of biodiversity underway on the planet. We are conservation organizations with an indispensable role of saving species.

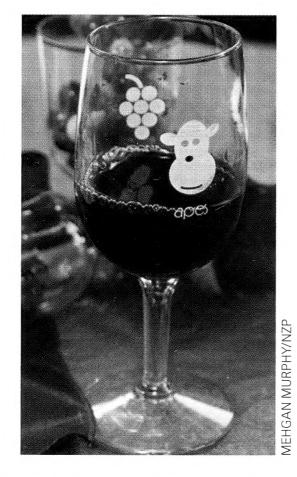
Sincerely,

Dennis Kelly

Director, Smithsonian's National Zoological Park

#### Autumn Excitement at the Zoo

Fall brings cooler days, fewer crowds, stunning foliage, and more great reasons to visit.



GRAPES WITH THE APES (Sept. 1): Support the Zoo's species-saving mission by luxuriating in the palatepleasing creations of local vintners and chefs.

fonz.org/grapes

**ENRICHMENT DAY (Sept. 10):** Keeping animals active and engaged is a vital part of zoo life. Learn more by watching and meeting keepers along with taking part in abundant enrichment and training activities. Free. fonz.org/enrich



ZOOFIESTA (Sept. 18): Celebrate Hispanic Heritage Month by enjoying music, sampling regional fare, and (of course!) learning how the Zoo works to conserve Andean bears, golden lion tamarins, and other South

American animals. Free. fonz.org/fiesta

**AUTUMN CONSERVATION FESTIVAL (Oct. 1-2):** Enjoy a rare opportunity to venture into the Smithsonian Conservation Biology Institute in Virginia and meet scientists engaged in the vital work of saving species. fonz.org/acf



BOO AT THE ZOO (Oct. 21-23): No tricks, many treats! This sure-to-sell-out event features spooky decorations, animal demonstrations, keeper chats, and enough treat stations for the most elephantine appetite. fonz.org/boo



LIVING ZOO (Oct. 28): Stir live music, craft beer, food trucks, a costume contest, and performance artists into your calendar cauldron for a magically unmissable, adults-only celebration. fonz.org/nolz



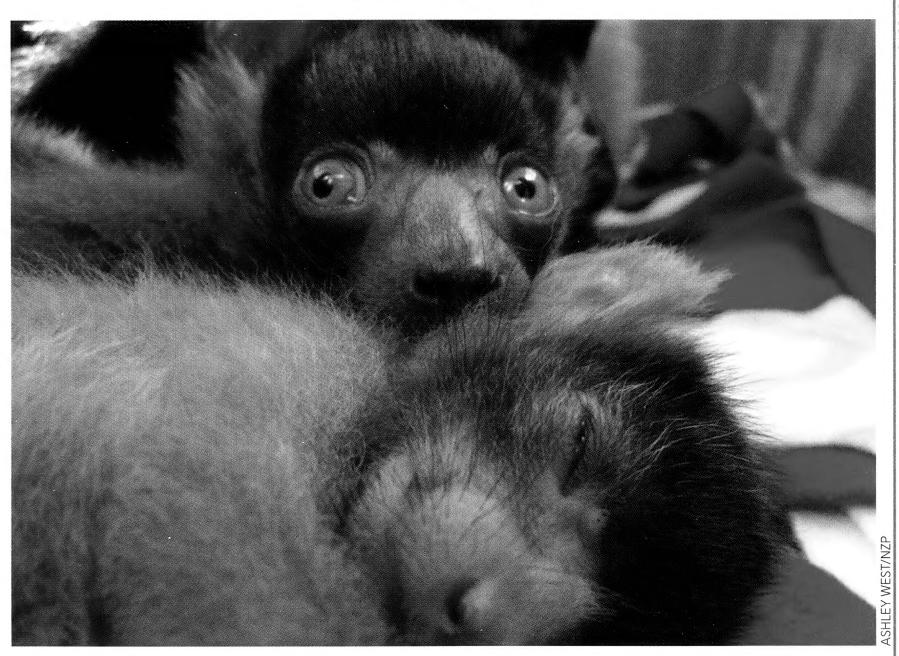
ANIMAL ARRIVALS: Welcome maned wolves back to the Cheetah Conservation Station. Meet Sparky, the new male tiger brought in to breed with Damai, the Zoo's adult female. Come see our sea lion pup and, if all goes well, a baby orangutan.

#### ZOONEWS

#### Green-Eyed Beauties

Three red-ruffed lemurs were born at the Zoo in April, and they're now on exhibit at the Small Mammal House. The mom, Molly, bred with two males in the exhibit (Coronado and Cortez), who are brothers. The pairing was part of the Association of Zoos and Aquariums' Species Survival Plan for redruffed lemurs, which are critically endangered in their native Madagascar.

Learn more online: fonz.org/redruffed







#### **Raised by Wolves**

Two maned wolf pups born at the Smithsonian Conservation Biology Institute this past winter are now growing fast and starting to show their personalities. The female is feisty, adventurous, and inquisitive. The male is shy and timid. The pups spent much of the spring in the den with their mom, Zayda, before starting to venture out. Keepers hide food around their yard



and let the cubs hunt for it. The pups also get enrichment items, such as tubes filled with treats to extract and balls to pounce on. So far, SCBI staff have largely left the pups alone to bond with their mom, but keepers will start training them this fall. Using food rewards, keepers will teach the animals to climb onto a scale to be weighed, and to get comfortable in a crate, so they can be transported. Like all animal training, it's entirely voluntary, and the pups can walk away anytime. SCBI has 11 maned wolves in total. You can see maned wolves at the Cheetah Conservation Station. Learn more online: fonz.org/wolfpups

#### Winged Diplomat

The Zoo's male Baltimore oriole (whose nickname is simply "Oriole") has a curious personality. Five years old, he was born in the wild but rescued after losing a toe. While being hand-raised at a rehab facility, he became more comfortable around people than birds.

Oriole was at the Columbus Zoo for a while, but he was antagonistic to the other birds, so he came to the Smithsonian's National Zoo, where he has an enclosure of his own. To ensure that Oriole stays healthy, keeper Jordana Todd is training him to land on her arm, show body parts, position himself on specific branches during demonstrations, and enter a crate on cue. As a reward, Oriole gets snacks like worms, crickets, and fruit (a favorite of all orioles). Oriole is an example of a demonstration animal one that interacts with visitors to help them learn about a species.

Learn more online: fonz.org/oriole

Duck Training The Bird House's 20 ducks share an exhibit space with 60 skittish flamingos. Normally, that works just fine. But then comes spring—and the ducks' breeding season.

The ducks then start competing for mates and territory, often grabbing one another by the leg. That creates a challenge for keepers, who need to check on the ducks without spooking the flamingos. Their solution? Zoo staff trained the ducks to come to an indoor enclosure when they're called.

At first, just a few waddled inside, where they were rewarded with food: diet pellets, mealworms, wax worms, and crickets. Now the entire flock comes when called. Sometimes wild mallards dropping in on the exhibit come along for treats too!

Summoning ducks inside allows Zoo staff to examine the birds and make sure they don't have any injuries that need attention or treatment. To make sure the lesson sticks, the staff now call the ducks in at least once a day.

**Learn more online:** *fonz.org/ducks* 



#### Back From the Brink

This past spring, a black-footed ferret at the Zoo's Smithsonian Conservation Biology Institute gave birth to four kits. Black-footed ferrets are one of the Zoo's greatest conservation successes. The species was considered extinct until the early 1980s, when a small population (just 18 animals) was found in Wyoming.

Since then, researchers at SCBI have pioneered new techniques to artificially inseminate black-footed ferrets and prepare them to be reintroduced into the wild. The predators' training includes getting them used to tunnels, since that's where they'll find prairie dogs, their main prey.

Today, there are more than 250 black-footed ferrets in breeding facilities and some 800 in the wild throughout North America. As of early summer, the four new kits at SCBI were healthy and growing fast.



#### Procedures for a Porcupine

In late spring, Quillby, the Zoo's eight-year-old North American male porcupine, seemed a little off. So veterinarian Jessica Siegal-Willott and biologist Leigh Pitsko worked with the Friendship Hospital for Animals to get him checked out.

An initial exam at the Zoo found that Quillby's ears were dirty, possibly a sign of fluid building up in the middle and inner ear (which might have thrown off his balance).

Next, an ultrasound found something that looked like a mass in Quillby's bladder. To confirm the diagnosis, the Zoo team asked experts at Friendship Hospital to weigh in. The Zoo frequently collaborates with the hospital and its consulting neurologists, radiologists, surgeons, anesthesiologists, and internists. They've helped with Zoo animals ranging from gibbons to fishing cats to Chinese water dragons—and much more.

The Friendship team did a second ultrasound, which found that the mass was a buildup of crystals in Quillby's bladder. He's fine now, but the crystals could lead to a bladder infection or kidney stones. The Zoo's veterinary team will continue to watch him closely.

Learn more online: fonz.org/quillby

#### ZOONEWS

#### **Zoo Diplomacy**

In May, Zoo director Dennis Kelly and associate director of animal care sciences Brandie Smith traveled to India to help launch an advanced professional training program focusing on animal reproductive science and medicine. As part of the program, scientists and veterinarians from the Zoo and Smithsonian Conservation Biology Institute will host courses for animal care professionals who work in Indian zoos. While in India, the two toured some of the country's national parks and wildlife sanctuaries, including Kaziranga National Park, a World Heritage site that hosts twothirds of the world's one-horned rhinoceroses. And they met with the director and chief veterinarian at the National Zoo in Delhi, where they exchanged information on exhibit design, enrichment, population management, and other critical issues.

Learn more online: fonz.org/india



Hatchling Hero — Early May brought an exciting first at the Smithsonian Conservation Biology Institute in Virginia: A brown kiwi chick hatched from an egg laid at the facility. (SCBI had previously hatched eggs brought from other zoos.)

The parents—Ngati Hine Rua (female) and Ngati Hine Tahi (male)—were a gift from the government of New Zealand in 2010. They were the first kiwis to leave New Zealand in two decades.

Kiwis are nocturnal, flightless birds about the size of chickens. They evolved without natural predators, but they're now threatened in New Zealand by dogs, cats, and stoats brought to the islands by people.

This is the latest triumph in the Zoo's strong track record with kiwis. The Zoo was the first facility outside New Zealand to successfully breed the species, back in 1975. You can see kiwis at the Bird House, which hosts Meet-a-Kiwi demonstrations at 11 a.m. on most Mondays, Wednesdays, and Fridays.

Learn more online: fonz.org/kiwi







#### ORANGUTAN **EXPECTATIONS**

Come September if all goes well, residents and staff at the Great Ape House will hear the cries of a newborn orangutan—a sound not heard at the Zoo for 25 years. Batang, a critically endangered Bornean orangutan, is expecting her first baby. As of early summer, she was doing well, and staff were training her to hold a baby (using a plush doll) and getting her used to the feel of a breast pump.

Learn more online: fonz.org/batang

WHAT IS A POOPNADO?

HOW CAN YOU TRACK AN ELEPHANT FROM SPACE?

IS IT DIFFICULT
TO RELEASE A
SCIMITAR-HORNED
ORYX BACK INTO
THE WILD?

WHAT IS BLACK
FOOTED FERRET
BOOTCAMP AND
CAN I JOIN?

HOW DO

CHEETAHS USE

SPEED DATING TO

FIND A MATE?

HOW IS BACTERIA
ACTUALLY HELPING
SAVE FROGS?

HOW DO YOU

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HAVE THESE AND ALL YOUR QUESTIONS ANSWERED AT THE

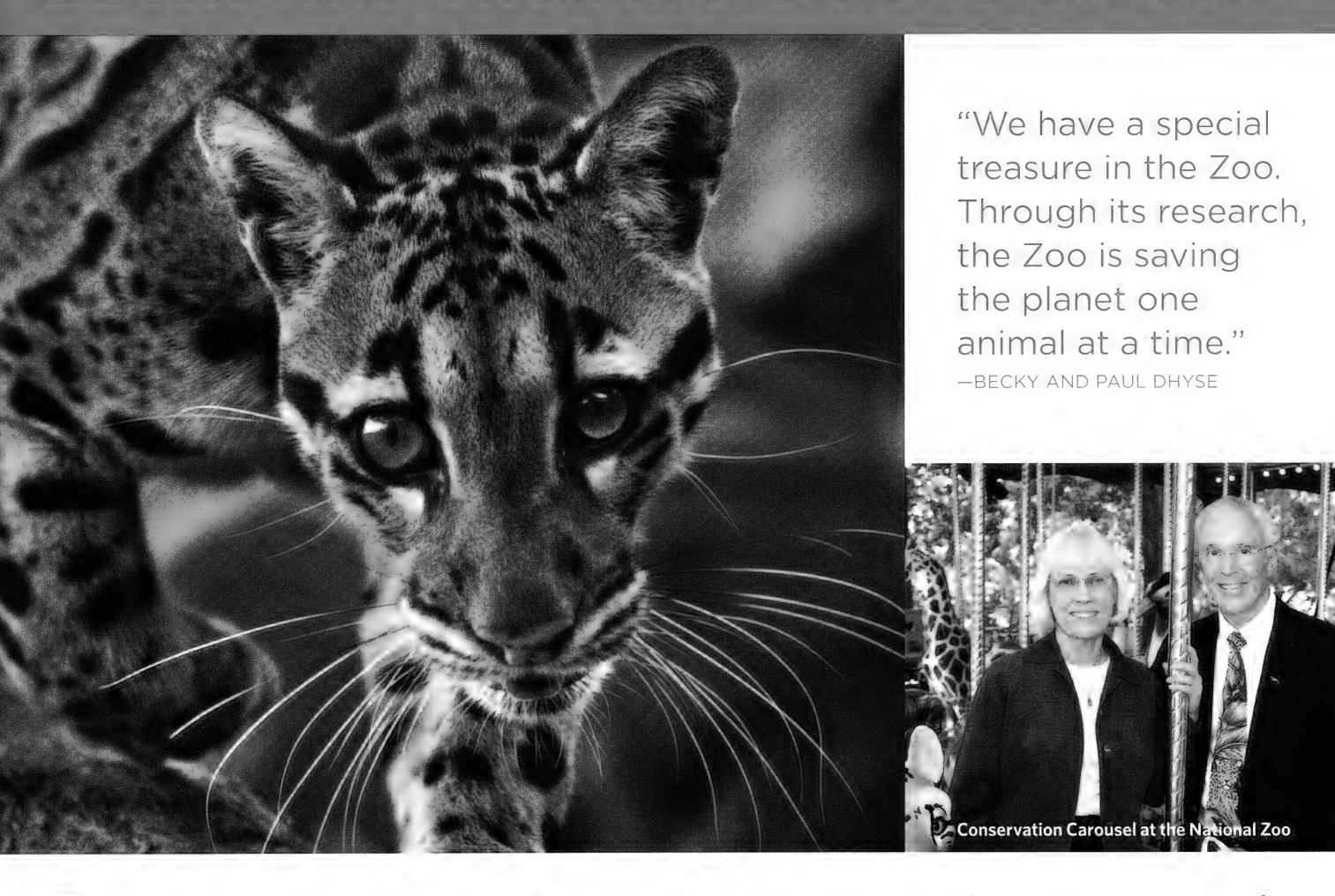
## Smithsonian Conservation Biology Institute's Autumn Conservation Festival

OCTOBER 1-2 • FRONT ROYAL, VA

Chat with our world-famous scientists one-on-one and learn about their fascinating research that spans the globe. Meet the animal care staff and find out what it takes to care for and save critically endangered species. Explore SCBI's fascinating history and what makes it a one-of-a-kind breeding and research facility. There's no doubt ACF is unquestionably fun for inquiring minds of all ages!

Car passes required for admission. One-day passes are free to FONZ SCBI Club members and FONZ members at the Patron level and above; otherwise \$30 in advance, \$40 at the gate. Maximum of six people per standard vehicle pass. Get your pass today at FONZ.ORG/ACF.

#### BECKY AND PAUL ARE SAVING SPECIES



louded leopards, giant pandas, Asian elephants . . . and many other species preserved by the National Zoo can be your lasting legacy. As Becky and Paul know, most gifts cost you nothing now and you are not locked in to a decision you make today.

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Conservation Biology Institute

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Almost every vertebrate sports a tail. Tails are motors, rudders, extra arms, fly swatters, weapons, communication tools, detachable distraction devices, and much more.

# Tale of

BY BRITTANY STEFF

t's a tail as old as time. At the very least, it's much, much older than recorded history. When the first vertebrates, fish with skeletons made of cartilage, evolved about 500 million years ago, each possessed four limbs, a head, a spine, and a tail. Almost every other vertebrate since has been similarly equipped.

Those vanguard vertebrates swept their fin-shaped tails from side to side, propelling themselves through the water. Since then, tails have evolved into an explosion of shapes and uses. Today's tails can be long, short, stubby, prehensile, smooth, fuzzy, and curly. Animals use them for defense, for balance, for locomotion, for social bonding, for grabbing food, and in some cases as an

In many ways, the story of an animal's tail is the story of that species itself its environment, its evolution, and how it got where it is today.

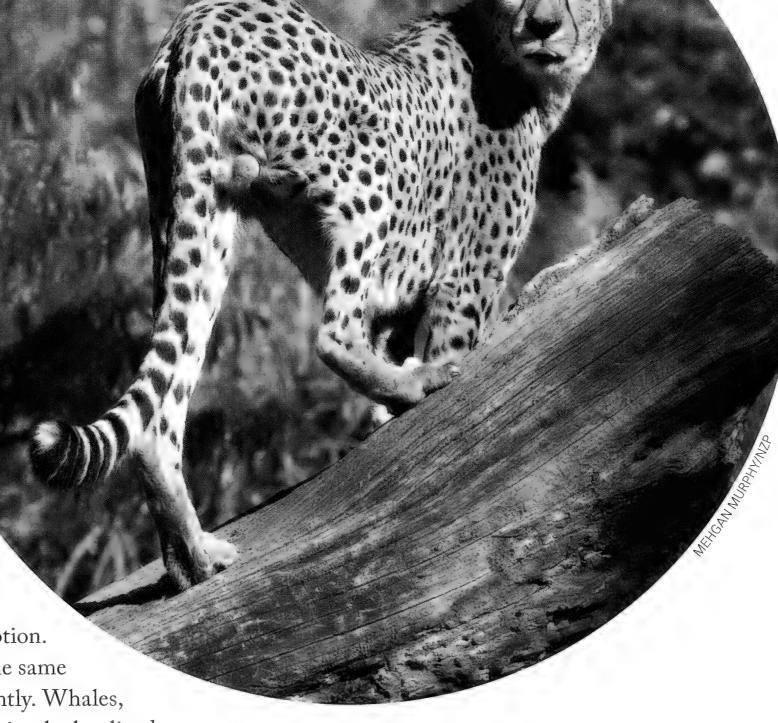
#### **Tailoring Movement**

extra limb.

Where an animal is today is often a direct consequence of its tail. That's especially true for aquatic animals, including sharks, whales, dolphins, manatees, marine snakes, and tadpoles. They all use their tails to move.

Differences arise when you compare how these animals move their tails. Tadpoles and snakes wriggle soft, flexible tails, while fish and marine mammals pump strong, rigid ones. Sharks and most other fish wave their tails side to side. Dolphins and whales rely on an up-and-down motion.

That's because, despite performing the same function, the tails arose entirely differently. Whales, dolphins, and manatees evolved from animals that lived on land, where their spines and musculature had evolved to support the foot-up-foot-down movement of a terrestrial creature. As they adapted to an aquatic environment, they kept that movement, eventually sacrificing their back limbs in favor of their tails.



FACING PAGE: Long-tailed salamanders have prehensile tails built for grabbing.

THIS PAGE: Cheetahs use their tails as rudders to help them make sharp turns at high speed.

#### A Tale of TAILS

In many ways, the story of an animal's tail is the story of that species itself—its environment, its evolution, and how it got where it is today.

Tails don't just propel; they also help animals steer. In the water, animals like otters, crocodiles, and beavers use their tails as rudders. Tails used for steering are long, strong, and muscular. A beaver's broad, flat tail can steer it in four directions.

Tails can also help keep animals balanced-in the water or out of it. Arboreal animals, for instance, rely on their tails to maintain their balance in trees. Picture a squirrel bounding along a branch. That long, luxurious tail bouncing out behind it is more than just an aesthetic touch. It acts as a counterweight to the squirrel's head. Its length and strength help the squir-

> branches, much as a gymnast's arms keep her from

rel balance on narrow

a balance beam.

Truly

excep-

falling off

tional climbers such as red pandas and clouded leopards (both of which possess the rare ability to

descend a tree trunk headfirst) tend to have very long, muscular tails. The clouded leopard's tail is the longest, compared to body size, of any cat species. Tigers, leopards, lemurs, and tamarins also rely on their long tails to balance

Cheetahs have long tails too, but not for climbing. Their tails act as rudders and counterbalances to help them make needle-sharp turns as they chase prey across the savanna at 60 miles an hour. Likewise, birds use their tails to steer, balance, and maneuver.

on tree limbs.

Birds depend so much on their tails that you can frequently tell quite a bit about an avian animal simply by checking out its tail. Birds that fly quickly and acrobatically, such as raptors, swallows, and hummingbirds, tend to have short, sturdy, clearly shaped tails. In contrast,

grouse, peafowl, ostriches, and other birds that don't rely heavily on flight often boast softer, floppier tails that they may use for other purposes—such as display.

#### Social Details

Some of the most spectacular tails aren't used in movement at all. Peacocks, birds of paradise, pheasants, bowerbirds, rabbits, and some fish use their tails more to communicate and impress than to move. In these species, male tails can be long, elaborate, and seemingly cumbersome.

On the surface, such tails don't make much evolutionary sense. They take energy to grow and maintain; they hamper the males' movements both on the ground and in flight; and they make males less agile and less able to flee from predators. Why bother with such a burden, no matter how beautiful?

The answer: to impress females. For these species, the chance of winning mates and fathering offspring outweighs any tail troubles. Often the male with the largest, most elaborate tail is the one who attracts the most females.

Other animals communicate by tailophone as well. Dogs wag their tails to show excitement; cats lash theirs to signal unease. Titi monkeys twine their tails together to show affection. Watching an animal's tail is often a handy way to detect clues about its mood and possible future actions.

Indeed, tails can deliver warnings. A rattlesnake's tail is ringed with extra-hard keratin scales—the better to make noise and warn off predators. Skunks perform handstands, waving their boldly patterned tails in the air to drive home to would-be attackers that something truly malodorous will happen if they don't back off.

THIS PAGE: This juvenile green tree python hasn't yet acquired its signature shade, but its prehensile tail is already in action.

FACING PAGE, CLOCKWISE FROM TOP LEFT: A fantastic leaf-tailed gecko uses its tail to help it blend in. Kori bustards use their tails for mating displays. Frogs, like this green and black poison frog, only have tails during their tadpole stage. Red panda tails are like builtin blankets.









#### A Tale of TAILS

Whales, dolphins, and manatees are noted for using their tails as signalling devices, slapping the water's surface to lure mates or repel predators.

#### Entailed in Defense

One of the most famously dangerous tails in the animal world is attached to a fish. Most fish use their tails for propulsion, but skates and rays don't. Instead, they flap their pectoral fins to push them through the water, a bit like a bird winging across the sky. Since they don't need a tail for propulsion anymore, some of these animals have evolved a different use for it—as a weapon.

> Stingrays have serrated spikes in their tails. Typically docile

> > creatures, stingrays usually

react only if stepped upon

or otherwise menaced. Then the tail

comes up, and the spike injects a dose of venom into

the body (usually the leg or ankle) of whatever has threatened it.

Rather than being dangerous themselves, some animals' tails provide defense by distraction. Fiji Island iguanas, leopard geckos, and glass lizards are among the reptiles that shed their tails when threatened. The tail then "shatters" into several pieces, each of which continues to move, while the animal holds perfectly still. The twitching tail bits distract the predator while the reptile flees. In time, a new tail grows, but it's never as long or developed as the original.

Tails can also defend animals from the elements. Fennec foxes, for instance, live in sandy deserts where the wind is harsh and the temperatures vary from broiling to freezing. Small Mammal House curator Steve Sarro explains, "Fennec foxes have very brushy tails. Even in the Small Mam-

mal House, you'll often see them curled up with their head under their tail. In the wild, that helps keep the sand away from their bodies. And other animals—like red pandas and anteaters—do the same thing to give themselves a little extra warmth."

Beavers do the opposite. The broad, flat expanse of their tails helps dissipate heat when too much of it builds up in their bodies. Rats and several other species use their nearly furless tails the same way.

#### The Tail End

Some tails give their animals a helping hand almost literally. They are prehensile tails, which can grasp or hold onto things. Prehensile tails tend to be long, very strong, and flattened on the bottom traits that lend steel to the animal's grip. Arboreal animals often use prehensile tails while eating high up in the trees: securing themselves to branches or harvesting fruit and other foods.

Prehensile tails evolved wherever they are most advantageous, existing in an enormous range of species. Spider and howler monkeys, opossums, tamanduas (also known as lesser anteaters), pangolins, chameleons, climbing salamanders, and tree boas have prehensile tails. So do some porcupines and skinks.

Old World monkeys, in contrast, do not. Alex Reddy, a primates keeper, explains that this likely resulted from differing forest densities. Old World forests are less lush than their New World counterparts, so prehensile tails don't offer the same benefits there.

Some other animals' tails, while not prehensile, serve a distinct and handy purpose of their own—as fly swatters. Antelope, horses, zebras, and elephants all use their tails to deter biting flies and other insects. According to Tony Barthel, curator of the Cheetah Conservation Station and

THIS PAGE: The desert-dwelling fennec fox can shield itself from flying sand with its tail.

FACING PAGE, CLOCKWISE FROM TOP LEFT: Clouded leopards rely on their tails for balance when climbing. Bears, like this Andean bear, are among the few animals without a use for a tail. Male ring-tailed lemurs apply a foul scent to their tails to compete for mates.

Fennec foxes have very brushy tails. Even in the

Small Mammal House, you'll often see them curled up with their head under

their tail. In

the wild, that

helps keep the sand away from their bodies.







Explore the diversity of animal tails on your next visit to the Zoo.

GET THE GUIDE: To plan your tails trek, stop by an information desk for a souvenir Zoo guide—complete with map, animal index, exhibit overviews, activities for kids, and discount coupons. The modest cost supports conservation.

ALL TYPES OF TAILS: Trek Asia Trail to meet a clouded leopard (whose long tail makes it an ace climber), elephants (whose ropelike tails swat flies), and sloth bears (whose tails have shrunk over the ages for lack of purpose).

STINK FIGHTS: Drop by Lemur Island to see critters with an intriguing way of using their tails. When battling for mates or dominance, male ring-tailed lemurs rub a foul-smelling substance from their scent glands onto their tails. They then arch their tails over their heads and wave them at rivals. The standoff can last a few minutes to a full hour, till one of the lemurs backs off.

PLEASE DON'T TOUCH: Swim over to Amazonia to see freshwater stingrays and the famous tails that gave the flat fish their name. But please don't touch the stingrays! Unlike some on exhibit elsewhere, ours still have their barbs and should be considered armed—or tailed.

#### A Tale of TAILS

#### **Learning From Nature**

Scientists study animal tails for varied reasons. Physicists and aerospace engineers explore how birds' tails contribute to flight aerodynamics and look for ways to apply their findings to designs for planes and rockets

**Bioengineers and medical** researchers examine the process by which some reptiles grow new tails after shedding their original ones to distract and elude predators. Scientists hope that understanding those mechanisms may lead to ways to help human bodies

Elephant Trails, animals with tufted tails usually use them as fly swatters.

"They're surprisingly accurate with them. Even antelope with fairly short tails can hit a fly or a bug that's bothering them," he explains. The fewer bugs that bite, the lower the risk of incurring a blood-borne illness, and the better the animals survive.

#### **Curtailed Critters**

But what about us few, poor vertebrates without tails? Out of thousands of vertebrate species, only a handful don't have tails: frogs and toads, hyraxes, some rodents, some primates, and of course the great apes (including humans).

All animals, even humans, actually do possess tails at some stage in their development. Frogs and toads have tails as tadpoles, before they metamorphose into their adult forms. A human embryo possesses a tail, consisting of 10 to 12 vertebrae, at about four weeks' gestation. Four to eight weeks later, it loses the tail, and development moves on to other things.

Reddy explains, "Humans and other apes lack external tails. Tails provide balance for quadrupeds, but we bipeds balance without them. That's due to the way our heavy heads are aligned above our spines as well as the structure of our pelvic bones and the anatomy of our legs and feet."

Like every feature animals possess, a tail is subject to evolutionary pressure. If it's not necessary, animals will lose it—slowly, over millennia or even eons. That's what happened with the tailless rodents, such as rock cavies, capybaras, and agoutis.

It's also happening to some animals right now. Bears, sloths, and some seals and sea lions don't have much use for tails. So theirs are slowly shrinking. Bears' ancestors, for example, possessed quite long tails. But bears no longer rely on tails for balance, for communication, or for anything else. Consequently, their tails have grown shorter and will likely disappear in a few million years or so.

Yet plenty of other animals' tails—short or long, straight or curly, scaly or fuzzy, muscular or feathery—seem to be sticking around, equipping their owners to thrive in diverse habitats. And each, given observation and thought, tells the tale of a species' survival.

—Freelance author BRITTANY STEFF is a contributing writer for the Zoo's website.



THIS PAGE: The tail of a roseate spoonbill helps it maneuver in mid-air.

FACING PAGE: Acrobatic birds like this common crowned pigeon have short, sturdy tails. The tail on this Przewalski's horse is an effective fly swatter. Green tree monitor lizards will whip threatening animals with their tails.







or centuries, cranes have captured the human heart and imagination, spawning legends, myths, and admiration. These birds of graceful necks and slender legs are revered as symbols of happiness, good fortune, and long life in many parts of Asia and around the world. Their graceful social-bonding and mating displays have inspired several forms of dance and martial arts. Apollo, the sun god of ancient Greek and Roman mythology, was said to disguise himself as a crane when visiting the mortal world.

Unfortunately, these associations with luck, longevity, and mythological gods have not been enough to protect cranes, which are now among the most endangered bird families in the world. Of 15 species, 11 are vulnerable, endangered, or critically endangered. One species, the whooping crane, has just 450 birds left in the wild.

Because cranes are in such dire straits, researchers at the Zoo and the Smithsonian Conservation Biology Institute (SCBI) have become global leaders in studying, protecting, and breeding them in human care. The Zoo is the only accredited facility in the U.S. to breed Stanley cranes. (You can see them at the Bird House, including Alice, a gray beauty who thinks she's human.) In addi-

#### living legends

tion, SCBI scientists have successfully bred 21 white-naped and hooded crane chicks through artificial insemination (thanks in large part to a creative and dedicated keeper). Those efforts are giving cranes a chance at survival.

#### Loyal for Life

Asia is the epicenter for crane diversity eight species reside there for at least part of the year—but the birds can be found in plains, grasslands, and wetlands around the world. They live on every continent except Antarctica and South America.

Cranes often migrate long distances between breeding grounds and wintering areas. Unlike many birds, young cranes stay with their parents for eight months or longer. They often complete their first migration cycle with their parents before striking out on their own the following breeding season. The juveniles then spend one or several years mingling with other nonbreeding young adults before pairing off and raising chicks of their own.

Courtship begins with a dance. "It's a coordinated series of displays and postures," says Chris Crowe, one of the primary crane keepers at SCBI. "They bob their heads up and down. They jump up in the air. It varies a bit by species, but most of them do some variation of head bobbing and jumping up and down and dancing around." Once formed, those pair bonds generally last a lifetime.

One theory of why cranes are so loyal is that raising chicks is a combined and lengthy effort. "Both parents incubate the eggs," says Crowe. "They both feed and protect the chicks. So it helps evolutionwise to be paired with a partner who is a good parent so that they can continue to produce chicks and successfully raise them throughout their life."

The dance of crane reproduction has a slow rhythm. Every pair raises only one or two chicks a year, and those chicks won't breed until they are two or older. That tempo suits the birds' long lives, but it threatens their survival in a changing world.

Cranes rely on wetlands for breeding and foraging, and those habitats are often drained for agriculture and development. The birds are naturally shy, moreover, and may abandon even undeveloped wetlands if human settlements come too close.

Habitat loss can spur population crashes, which are compounded by cranes' slow reproductive rate. That underscores the importance of breeding the birds in human care. Doing so takes dedication, skill, science—and the willingness to feel a bit wacky.

#### Wooing Walnut

For example, one of the cranes at SCBI has a relationship with her keeper that falls into the "it's complicated" category. Walnut is a 35-year-old white-naped crane. When she arrived at SCBI in 2004, she was 23 and had yet to lay a fertile egg. That's because she refused all advances from potential partners. It appeared that no male was good enough for her. No male, that is, until she met keeper Chris Crowe.

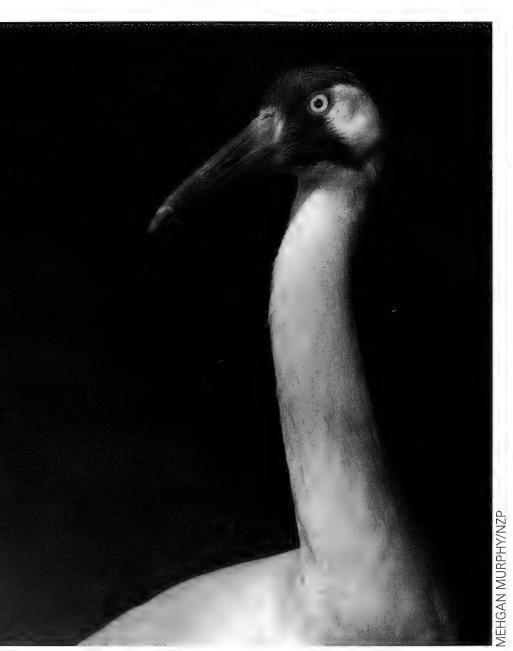
"I just noticed how she would respond when I came to see her," says Crowe. "She would do a lot of courtship behavior, dancing and bobbing her head whenever she would see me." Crowe and his colleagues decided to launch an experiment. Could they transform this seemingly negative behavior—a crane crushing on her human keeper—into a positive?

The answer, it turns out, is yes. "I started just hanging out with her," says Crowe. "If she flapped her wings, I would flap my arms. If she bobbed her head, I would bob my head. It worked. We bonded."

Twelve years later, Walnut has produced seven chicks and two grandchicks, all through artificial insemination (AI). Crowe uses Walnut's acceptance of him as a way to make the process easier and less stressful for the bird. AI typically requires capturing and restraining birds, but that's not necessary for Walnut.

#### MEET THE CRANES

Both whooping and Stanley cranes live at the Zoo's Bird House. Twice a week, Alice the Stanley crane joins lucky Zoo visitors for an outside-the-enclosure walk and talk. These usually take place at 11 a.m. on Tuesdays and Thursdays. Learn more about animal encounters at fonz.org/dailyprograms.





FAR LEFT: Whooping crane **LEFT: White-naped crane** 

FACING PAGE: SCBI has a strong track record of breeding white-naped cranes.





Walnut's attraction to Crowe is unusual but entirely understandable. She was handreared as a chick, and she imprinted on her human keepers. She refused those other cranes for a very good reason: So far as she's concerned, she's human.

The scenario is unfortunately quite common, explains Crowe. "Back in the '80s, it was all the rage to hand-rear cranes. They just didn't realize the chicks would imprint on people." As a result, Walnut and many of her peers have refused introductions with potential mates of their own species.

Walnut is not alone in her infatuation with Crowe. He has since used the same techniques to bond with three other female cranes: Amanda and Wu-Cheng (both white-naped cranes) and Hedlowe (a hooded crane).

In total, SCBI is home to 27 cranes: 8 hooded cranes, 6 red-crowned cranes, and 13 white-naped cranes. Most take part in a Species Survival Plan (SSP). Each SSP, organized by the Association of Zoos and Aquariums (AZA), manages captive breeding to ensure the animals' greatest genetic health. Many of these birds also require help to produce offspring.

"We get sent basically all the problem birds," says Crowe, who explains that SCBI has earned a reputation for succeeding with cranes that other AZAaccredited zoos and conservation facilities are unable to breed. SCBI's success with cranes is not surprising. According to Crowe, the facility is one of the few that will attempt AI with the birds.

"Most places that have cranes don't want to handle them, because they're afraid the birds will get injured or the people will get injured." SCBI's adeptness at clearing those hurdles has led to the hatching of 21 AI-produced chicks since 2002, all without serious injury to bird or human. Crowe and his colleagues share their knowledge with other zoos and breeding facilities—in hopes that more will be able to complete successful AI with their birds.

THIS PAGE: Keeper Chris Crowe has formed a special bond with some of the Zoo's whitenaped cranes.

FACING PAGE: White-naped crane chick.

#### **Ambassador Alice**

When asked whether she has a favorite among the Zoo's seven cranes—five Stanley cranes and two whooping cranes—Bird House curator Sara Hallager is quick with her answer: "Alice. She comes out twice a week and interacts with the public. She's a trip. She dances, and we take walks with people. She's pretty personable."

Alice's outgoing personality is the happy result of being hand-reared at the Zoo. Her sibling hatched first, and her parents then stopped incubating her egg. In response, Bird House keepers relocated Alice's unhatched egg to an incubator, and then tended the chick once she hatched.

Now two years old, Alice continues to treat her keepers and admirers as members of her flock. "You just have to experience Alice," says Hallager. "She's just a very happy crane. She really enjoys interacting with people."

When Alice turned one last year, her keepers wanted to confirm that her visits with the public were as fun for her as they appeared. "We wanted to be sure that interacting with people wasn't stressing her out," says Hallager. To find their answer, Alice's keepers collected fecal samples and sent them to SCBI's endocrinology lab to test for stress hormones. The results were good, explains Hallager: "That basically showed that Alice is pretty cool with everything."

Now, a year later, Hallager and her team are expanding their search for stress hormones to include Alice's parents and two siblings, also residents at the Zoo's Bird House. Again, they will collect fecal samples for analysis. The results—likely available sometime next year—will provide insight into the birds' hormone levels and help animal care staff refine husbandry and breeding efforts.

#### Whooping It Up?

For many years, the Zoo was eager to add whooping cranes to its collection. The North American birds are endangered in the wild, and few are available in zoo populations. Then, in 2011, Hallager got a call about a whooping crane named Rocky.

"Rocky is a whooping crane who doesn't whoop," says Hallager, who explains that Rocky lost his voice to an infection in his

trachea as a chick. Otherwise, Rocky was healthy. At a wildlife park in Florida, he met and bonded with a female. "Then, a new male flew in," says Hallager. "And his girlfriend dumped Rocky and went after the new male."

And so Rocky came to the Smithsonian's National Zoo. A year later, Eha—a female whooping crane—arrived. "Eha just loves Rocky," says Hallager. "They are a great pair. She calls, and he pretends to call. He kind of emits this little squeak, but he goes through the postures and does everything else right, and she seems to love him."

Even without a whoop, Rocky's arrival at the Zoo was a wish come true. So was his pairing up with Eha. But it will take more

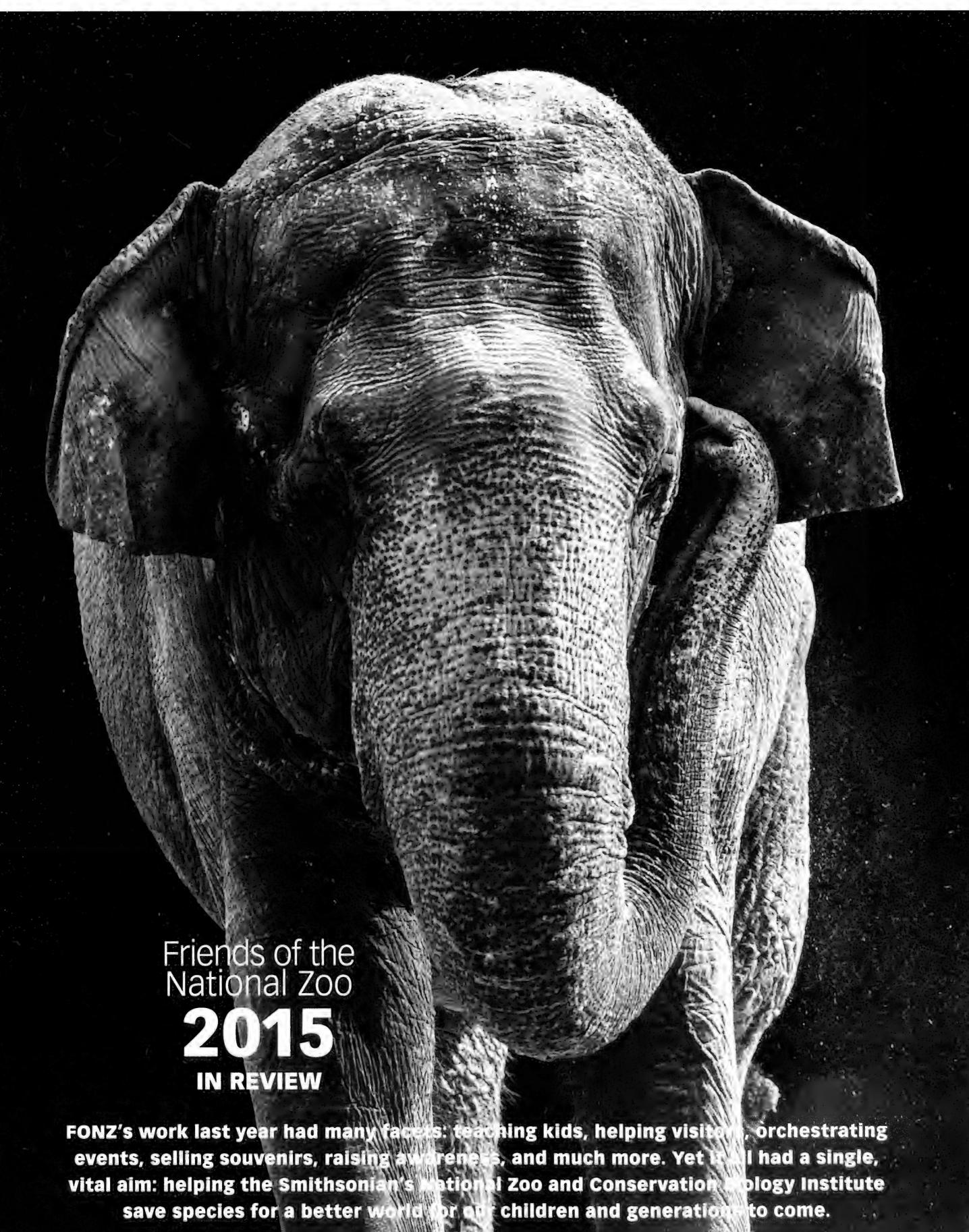


than wishing to write a happy ending for their wild relatives. It will take work. It will take determination. It will take science.

And it will take the concern of people like you. "Our role—and one of the reasons we bring Alice out—is to talk to people about cranes and crane conservation," says Hallager. "If people care about Alice, maybe they'll care about her habitat and what's happening in the wild." And that is a wish worth working toward.

—Freelance wordsmith CRISTINA SANTIESTEVAN is a veteran contributor to the magazine.





#### 2015 FINANCIAL SUMMARY

FONZ had a strong year, with total revenues of \$14,905,504 and total expenses of \$14,842,211.



#### \$2.6 MILLION IN MEMBERSHIP DUES

Members like you are the foundation of FONZ's work, especially our support of the Zoo and SCBI. Thank you.

#### 90,000 FAMILY MEMBERS

With more than 31,000 household memberships, FONZ reaches at least three times that number of people, sharing the Zoo's species-saving mission and message.



#### BUILT SHADE STRUCTURE

FONZ partnered with the American Academy of Dermatology, which funded the skin-protecting American Trail Amphitheatre Shade Structure.

#### SHOPS: \$1.2 MILLION TO THE ZOO

FONZ merchandise sales brought in \$5 million in revenue, allowing us to contribute \$1.2 million to the Zoo.



#### FOOD: \$2 MILLION TO THE ZOO

The Mane Grill, Panda Grill, Seal Rock Café, and other food concessions earned \$7.2 million in revenue, providing the Zoo with nearly \$2 million in commissions.



### \$110,000 "GROW UP GREAT" GRANT FROM PNC FOUNDATION

FONZ Education Programs won funding to bring underserved families from Ward 7 to the Zoo for early education programs to build vocabulary skills while learning about animals.



#### \$295,000 IN DONATIONS

FONZ's Adopt a Species program raised \$106,000, and donations through the website and other channels totaled more than \$189,000.

#### 200 MILLION AD IMPRESSIONS

Print and broadcast advertisements purchased by FONZ or contributed by our media partners reached millions, stressing the Zoo's conservation mission and inviting people to support it.



#### 24,000 SOCIAL MEDIA FOLLOWERS

FONZ engages a growing online audience in conversations about the Zoo's work, conservation issues, and FONZ events.

#### ONE NEW GUEST SHUTTLE

White as a polar bear and roomy enough for a flamingo flock, our new shuttle bus helped 27,640 guests enjoy the Zoo.



#### 500,000 LED LIGHTS

More than half a million
Earth-friendly lights, arranged into stunning animal figures, greeted thousands of ZooLights guests.



Friends of the National Zoo • fonz.org



## 3,000 HOURS OF MARKETING AND CREATIVE SUPPORT

FONZ's talented staff lent its expertise to the creation of the Zoo's app, annual appeal materials, and much more.



#### 372,000 MESSAGING OPPORTUNITIES

Smithsonian Zoogoer, email newsletters, and special messages bring FONZ and Zoo tidings to our most important audience—you, our members.



#### 22.5 MILLION PANDA CAM PAGE VIEWS

Web visitors around the globe got their fuzzy fix, thanks to the dedication of FONZ behavior-watch volunteers who operate the Panda Cam and help document giant panda behavior.

#### 71,000 EVENT GUESTS

From Boo at the Zoo to ZooFari, guests had a roaring good time while supporting conservation.



#### 2.356 MILLION VISITORS

Each day in 2015, FONZ staff enriched guests' time in the park by answering questions, providing shuttle rides, renting strollers, selling visitor guides, and much more.



#### \$2.2 MILLION FROM SPONSORS

Corporate sponsors donated \$760,000 in cash and \$1.5 million in kind (Boo at the Zoo treats, ZooFari delights, and more).

#### \$17,000 IN CAMP SCHOLARSHIPS

Your generosity enabled our popular camps at the Zoo and SCBI to welcome D.C.-area children who couldn't have attended otherwise.



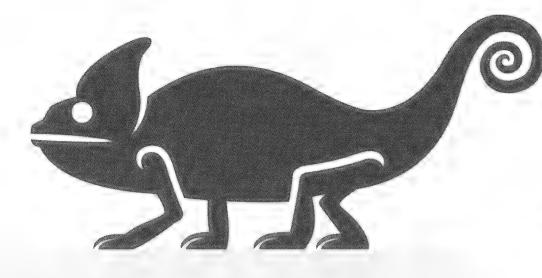
#### 170,000 VIRTUAL FIELD TRIP VISITS

Partnering with Discovery
Education, we hosted a virtual field
trip attended by students from 2,500
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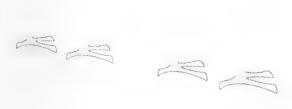
Our children's programs, camps, overnights, birthday parties, and "How Do You Zoo?" exhibit reached more than 7,000 kids and their families.

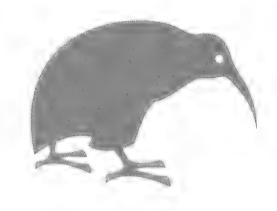




Our incredible volunteers shared the Zoo's education and conservation messages with 810,927 visitors, and they helped with animal care and behavioral research, providing the Zoo with services worth \$3.6 million.

2015 was a busy year for **Friends of the National Zoo**. The torch passed to a new generation of leadership, yet the organization stayed true to its enduring goal of supporting the Smithsonian's National Zoo and Conservation Biology Institute. These examples illustrate the breadth and variety of FONZ's work—raising both funds and awareness. Your membership enabled us to educate millions of people about Earth's wild wonders and the struggle to conserve them.





## Many Facets, One Focus

Dear Friends,

I hope you've had a chance to look over the terrific collection of FONZ accomplishments last year, from shops and social media to ZooLights on Olmsted Walk and the shade structure on American Trail. It's amazing what we were able to accomplish, thanks to you.

Each distinct FONZ undertaking contributes to our goal of supporting the Smithsonian's National Zoo and

Conservation Biology Institute. Your membership and involvement lie at the heart of that mission. Each time you renew your membership, visit the Zoo, send a kid to camp, volunteer, thrill your taste buds at ZooFari, buy a cuddly critter from one of our stores, Adopt a Species for a loved one, post your Zoo pictures online and encourage friends to visit, or help in any other of countless ways, you are part of an urgent global enterprise—saving species.

Thank you for being a Friend of the National Zoo.

Sincerely yours,

Karen Silberman

Chair, FONZ Board of Directors

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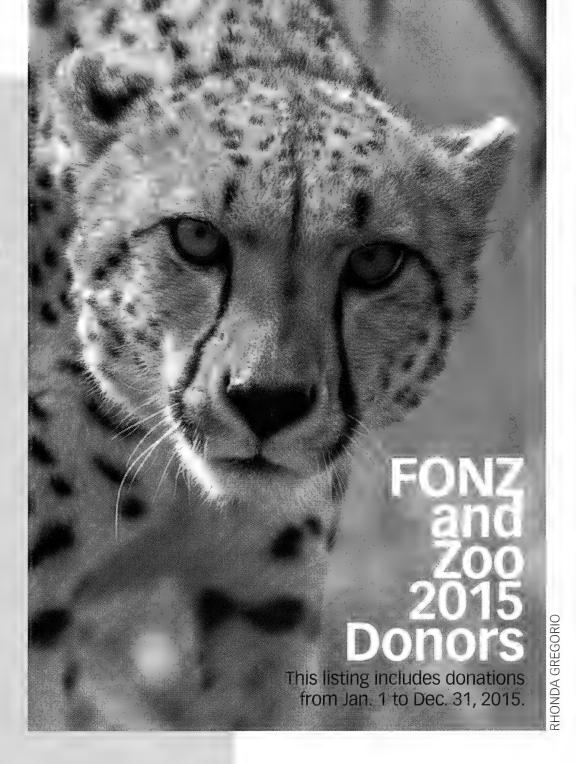
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Warmest thanks to everyone who contributed to FONZ and the Smithsonian's National Zoo and Conservation Biology Institute in 2015.

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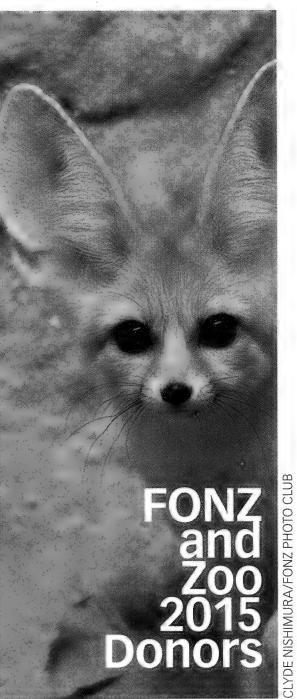
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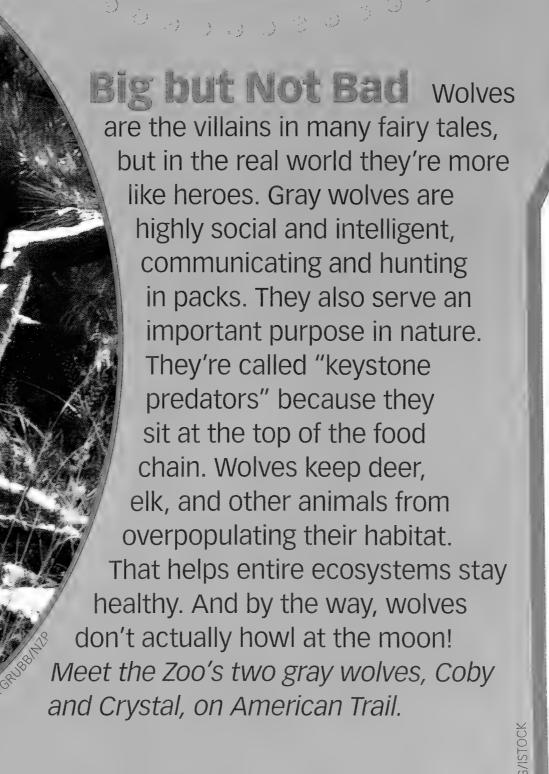
# - SMITHSON AN CORNER

# BEAST BITS

Fish Tales Piranhas have a fearsome reputation for devouring large

animals—and even eating people!
But that's not true. Piranhas do
have very sharp teeth, but they
typically group together in schools
only to protect themselves.
They're also omnivores, eating
mostly insects, small fish, and
plants. And when they do eat
larger animals, it's usually after
the animals are dead. You can see
piranhas at Amazonia.

Piranhas warn away predators by making a barking sound underwater!





# zoogoer KIGS CORNER

#### Lords of the FOREST

Eastern indigo snakes may look scary, and their scientific name—Drymarchon, pronounced "DRY-marsh-on"—means "lord of the forest." But these blue beauties are all hiss and no bite. Not venomous, they're usually calm and can even seem friendly—to people, though not to their prey.

#### OPEN Wide

Eastern indigo snakes are carnivores, chowing down on anything they can catch. Favorite dishes include turtles, lizards, birds, frogs, toads, and even other snakes. Unlike boa constrictors, which squeeze their prey to death, indigo snakes overpower other animals with their strong jaws. They sometimes thrash around and beat their prey against a nearby object. (No fun if you're on the menu.) Then the indigo swallows the animal head-first, sometimes while it's still alive!

#### Winter Homes, SUMMER HOMES

These beauties live in the southeastern U.S., especially in South Carolina, Georgia, and Florida. (They have cousins in Texas and Mexico.) Indigos change homes with the seasons. They stay warm during winter in underground burrows dug by gopher tortoises and armadillos. When spring comes, they hang out in hollow logs and debris piles. For summer, they move to sandy soil and riverbeds, followed by shady creek bottoms in the fall.

#### **GREAT** Lengths

Measuring more than eight feet and weighing up to 11 pounds, eastern indigo snakes are the longest nonvenomous serpents in the United States. Males are slightly bigger than females. The snakes' smooth scales are blackish-blue, but they look almost purple in bright sunlight. That's why these are called "indigo" snakes. They sometimes have a bit of red or orange on their throat, cheeks, and chin—as if they're blushing.

#### Egg-citing TIMES

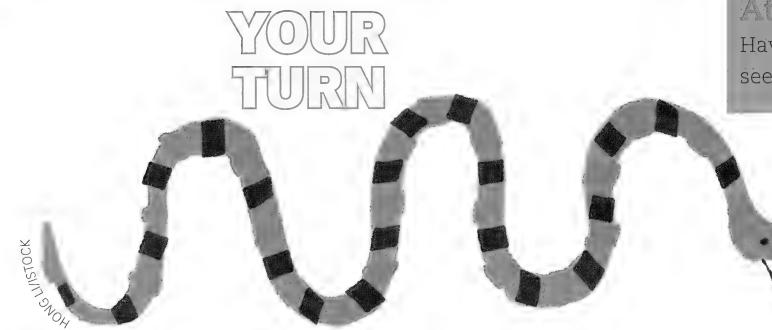
Females usually lay four to 12 eggs every May or June. The eggs are big—nearly three inches long. (A chicken egg is about two inches.) When the babies break out about three months later, they're roughly 16 inches long and ready for action.

#### NO HUNTING Allowed!

People pose the biggest threat to eastern indigo snakes. Hunters trying to catch rattlesnakes sometimes pour gasoline into burrows to drive them aboveground. This is illegal because the gas poisons a lot of animals, including indigos. Many indigos are taken from the wild to be pets. Habitat loss has threatened snake populations in Florida and Georgia, and nearly wiped them out in Alabama.

#### At the ZOO

Having trouble believing that snakes can be beautiful? Then see for yourself at the Zoo's Reptile Discovery Center!



- MAKE A SNAKE with some paper, glue, markers—and, most important of all, your imagination. Here's how:
- 1. Take a paper plate and color its surface. You can make it bluish-black for an indigo snake or go wild to create a super serpent of your own.
- 2. Cut the plate into a spiral, starting at the edge and working your way to the center.

# GREATURE FEATURE Black, Blue, & BEAUTIT BY PAMELA BUCKLINGER The eastern indigo strake is a gentle giant.

- 3. Once you reach the center, cut a bulbshaped head.
- 4. Stick on googly eyes.
  Don't have any? Then
  cut small circles out of paper and turn them into eyes.
- 5. Cut and color a forked tongue and glue it to the snake's mouth.
- 6. Show off your creation to friends to help them see how beautiful snakes can be!

# Warm Feelings for the Gold-Blooded

Snakes, lizards, and other reptiles creep some people out. But Angelo Miranda loves them.



ne day, I'm going to work here." That's what Angelo Miranda told his parents after showing them around the Zoo some years ago. He was right. In 2013, Miranda began volunteering at the Zoo's Reptile Discovery Center (RDC). He helps keepers feed the animals, clean exhibit spaces, and maintain enclosures. As he puts it, he does "pretty much everything the keepers need me to do."

#### **Passion and Pets**

Miranda has always been passionate about animals. He grew up with dogs and birds, which his father loved. He got his first snake at 15. "Sometimes our house was like a zoo when I was growing up," he says.

He now volunteers every Tuesday at RDC as a keeper aide. He loves spending time with animals that many people might fear.

"Most people like fluffy, cuddly animals, like puppies," he says. "But so many things are different and interesting about reptiles. They're cold-blooded, so they need to find a heat source. Many can go days without eating. I've always been fascinated by them."

Miranda has eight pets at home. They include three ball pythons, a Brazilian rainbow boa, a black ratsnake, and an Eastern box turtle. Most were rescued.

#### Slow Ahead

One of Miranda's favorite species at RDC is the Gila monster. He also loves the Aldabra tortoises. The female weighs nearly 150 pounds. That's nothing compared with the two males. One is more than 400 pounds, and the other is more than 500. "They're magnificent animals," Miranda says, "but they also can be stubborn. So you have to be very patient with them."

A special tool, called a target, helps Miranda lure the tortoises when it's time to come inside. It's a wooden circle painted red. Tortoises can distinguish colors.

He holds the target a few feet from them. Each time a tortoise inches forward and touches the target with its nose, he gives the animal a carrot. Moving a few steps at a time, they ultimately get back inside. "One of the males is pretty fast, but the other can take a long time to come in," Miranda says. "It's OK, though. You can never really rush when you're working with animals."

#### **Hatching Hopes**

Miranda also loves finding eggs in the enclosures while cleaning. "It's one of my favorite things," he says. "When we have eggs incubating, I count the days. Who doesn't love a baby animal?"

Like many Zoo volunteers, Miranda hopes to get hired as a full-time keeper someday. "That's my dream," he says.

In the meantime, he can't wait for each shift so he can learn something new. "You know how people look forward to Fridays so that they can stop working and enjoy the weekend? That's how I feel about coming to the Zoo on Tuesdays."

—JEFF GARIGLIANO

#### FONZ

## FONZ Children's Classes

#### Learning is WILD at the National Zoo!

FONZ classes use hands-on activities, crafts, and the Zoo's animal collection to help your child learn about environmental conservation and life science. Whether you prefer a regular, weekly experience with your child or a one-time event for the family, you're sure to find a class to suit the needs of your young animal lover. Classes for ages 2-13 are now available.

Classes do not include behind-the-scenes visits or direct contact with the animals, but do use pelts, bones, feathers, and other touchable artifacts. Pre-registration is required for all

children's classes.

All 2016-2017 class series are now open for registration! See detailed descriptions and register at fonz.org/classes.

#### **Class Series:**

\$150 per child (FONZ member) \$187.50 per child (non-member)

#### Weekend Classes:

\$28 per child (FONZ member) \$35 per child (non-member)

Enter discount code PANDA2016 at the checkout screen to secure the member rate.

#### PRESCHOOL CLASS SERIES

Our Tadpole and Frog class series meet once a week for five weeks. Children learn about animals and the natural world while building important academic, developmental, and social skills. Saturday morning sessions are now available. See the full list of options at fonz.org/classes.

#### Tadpoles (ages 2-3)

WHO'S NEW AT THE NATIONAL ZOO Who's new at the National Zoo? Lots of animal friends, waiting for you! Learn about some of the Zoo's newest arrivals and how zoo keepers care for them.

Classes meet one morning each week for five weeks (10-11:30 am on weekdays, 9-10:30 am on Saturdays), Sept. 26-Oct. 29.

#### HEAD, SHOULDERS, KNEES, **AND TAILS**

There's "nose" doubt about it—animals use some pretty amazing body parts to survive in the wild. Some parts of their bodies are a lot like ours, but others might seem very silly! Get ready to wiggle, squiggle, move, and groove as we explore animal tails, paws, whiskers, and wings.

Classes meet one morning each week, 10-11:30 am, Nov. 7-Dec. 17.

Register for five 2016-2017 class series before October 1, 2016, and receive an additional 10% rebate after checkout! That's a savings of \$78 for **FONZ members!** 



#### **FONZ RESOURCES**

fonz.org

Member/Donor Information 202.633.2922

**Special Events** 202.633.4470

**Corporate Events** 202.633.3045

Camps and Classes 202.633.3024

**Volunteer Services** 202.633.3025

Comments? Questions? Please email us at fonzmember@si.edu

> member yet? Call 202.633.2922 or go to fonz.org/join

#### Frogs (ages 3-5)

#### **NEW TO THE ZOO**

Who's new at the National Zoo? Lots of animal friends, waiting for you! Learn about some of the Zoo's newest arrivals and how zoo keepers care for them. (This is a more advanced version of the "Who's New" class for Tadpoles.)

Classes meet Tuesdays or Wednesdays, 1-2:30 pm, Sept. 27-Oct. 26.

#### **ANIMAL ARCHITECTS**

Put on your construction hats and meet the busy builders of the National Zoo! We'll travel from the tops of the trees to deep underground to learn where the wild things live! Then we'll put our design skills to work and create a home for each animal!

Classes meet Tuesdays or Wednesdays, 1-2:30 pm, Nov. 8-Dec. 14. (No class Thanksgiving week)

#### FONZ Children's Classes, Continued



#### HOMESCHOOL CLASSES

Homeschool Classes at the National Zoo investigate a new theme each academic year. Each multi-week class explores the theme from a new angle, discovering new connections between the animals and the ideas we study. Hands-on science experiments, inquiry-based learning, and Zoo Walks led by our expert teachers bring these concepts to life and address next-generation science standards. Visit fonz.org/classes to see more information and register your child.

#### **AMAZING AVES (BIRDS)**

#### Sept. 19-Oct. 27

This fall, our class takes off by exploring the world of birds. We'll study a different group each week, from flightless ratites to clever corvids. We'll also learn about how the Smithsonian Migratory Bird Center helps support birds around the world.

**AGES:** 5-7 (primary)

Mondays, 10:30-12:30

**AGES:** 7-13 (advanced)

Thursdays, 10:00-noon

FEE: \$180 (members) \$225 (non-members)

#### RADICAL REPTILIA (REPTILES)

#### Nov. 7- Dec. 15 (no class Thanksgiving week)

From lounging lizards to sensational snakes, there's nothing to fear from the cold-blooded critters of the Reptile Discovery Center. "Croc" open the hidden worlds of reptiles and explore the incredible efforts underway at the Zoo to save turtles, crocodiles, and other species from extinction.

AGES: 5-7 (primary)

Mondays, 10:30-12:30

AGES: 7-13 (advanced)

Thursdays, 10:00-noon

FEE: \$150 (members)

\$187.50 (non-members)



#### WEEKEND FAMILY **PROGRAMS**

Weekend family programs are single classes designed for children and their parents to enjoy together! Interactive stations introduce participants to featured animals and concepts, then a hands-on discussion gets you ready to visit the animals of the day.

#### BREAKFAST WITH THE BEASTS

**Oct 2:** Breakfast with the Bears Oct 9: Snacks with the Sea Lions **Oct 16:** Appetizers with the Apes

Who needs a teddy bear picnic when you have the real thing right here? We'll learn about the favorite foods of each of our featured animals, then head out into the park to join them for our snacktime.

**AGES:** 2-3 (9:00-10:30 a.m.)

#### WILD KRATTS

#### Oct. 23 or 30 (9:00-10:30 a.m.)

Get ready for a special Zoo mission: learning about animals with real creature power technology!

AGES: 4-6

#### **CURIOUS GEORGE GOES TO THE ZOO** Nov. 5 or 6 (10:00-11:30 a.m.)

Put on your yellow hat! We're learning about some of our favorite curious little monkeys!

**AGES: 2-3** 

#### **ELE-FUN**

#### Nov. 13 (10:00-11:30 a.m.)

The Zoo's gentle giants want you to join the herd! Try out your own trunk as we learn about elephants.

**AGES: 2-3** 

#### PANDA-MONIUM

#### Nov. 20 (10:00-11:30 a.m.)

Pandas may look black and white, but they're pretty colorful characters. Explore the hidden world of these beautiful bears, then visit the Zoo's most famous family.

**AGES:** 3-5

#### SPOTS AND STRIPES Dec. 4 (10:00-11:30 a.m.)

In the animal world, patterns aren't just pretty—they're pretty important! Learn how spots and stripes help animals survive.

**AGES: 2-3** 

### SAVE THE DATE!

Registration for 2016 Snow Safari Winter Camp (fonz.org/camps) and 2017 Birthday Parties (fonz.org/birthdays) opens on at 10 a.m. on Tuesday, November 1.

> Upgrade to a Premier+ membership (fonz.org/join) and register a week early—on Tuesday, October 25.

## Brew at the Zoo: We Thank You!

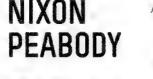
FONZ thanks everyone who contributed to—and attended— Brew at the Zoo this summer.

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#### FOOD

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**Finest Bar** & Kitchen Calvert Woodley **Fine Wines** & Spirits The Cookie Jar DC

and Bistro Duke's Counter The Fainting Goat Hank's **Oyster Bar** Hill Country BBQ

Port City

matchbox Meridian Pint **Pinstripes** The Prospect **Rural Society** Tonic at Quigley's



#### DRINK

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UBER

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Brewing Company Radeberger Gruppe, USA **RAR Brewing** RavenBeer Right Proper Brewing Company Schlafly **Shiner Beers** Sierra Nevada Brewing Co. Sixpoint Brewery Sly Fox Brewery Small Town Brewery Smuttynose Starr Hill Brewery

**Stone Brewing SweetWater** Tall Tales Brewing Company The Brewer's Art Three Notch'd Brewing Co. Troegs Independent Brewing Company **Union Craft** Brewing Vanish Victory Brewing Company Waredaca Brewing Company **Zeffer Brewing** Company



Clown Shoes

Beer

Halloween Contests Feeling creative? Let your imagination run wild in our magical contests for both kids and adults.

**PUMPKIN DECORATIONS:** Kids under 18 are invited to adorn pumpkins with paint and other decorations to create familyfriendly masterpieces that will be displayed at Boo at the Zoo. No carving please. Two grand-prize winners (one under seven, the other seven or above) will receive Boo at the Zoo tickets for four.

> Learn more and register: fonz.org/ pumpkins

**DAY OF THE DEAD ALTARS:** Día de los Muertos (Day of the Dead) is an ancient celebration that honors our ancestors through the creation of altars. Register to create your own altar, traditional or with a modern spin, that will be showcased at Night of the Living Zoo. You could win a private party for 10 and tour at the Zoo. Contest and judging will take place on Friday, October 28.

Learn more and register: fonz.org/altars

# An Ocean of Thanks to Our "Washed Ashore" Sponsors

Their generous support made it possible to exhibit "Washed Ashore: Art to Save the Sea" at the Zoo this summer.







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### **FONZ Board Updates**

**BYLAWS:** At its June 28th meeting, the Board of Directors unanimously approved updates to the FONZ bylaws in accordance with changes to the D.C. Code for Nonprofit Corporations.

**CALL FOR NOMINATIONS**: Help chart the future of FONZ by nominating yourself or another current member for our Board of Directors. The volunteer Board works closely with FONZ leadership to guide our efforts and shape our success.

Nominations are due by September 30, 2016, and will be reviewed by the Board of Directors. To learn more and find the nomination form, please visit **fonz.org/board**.

# IMPORTANT ZOOLIGHTS UPDATES!

**BrewLights** will take place on **December 1**, a week earlier than originally scheduled.

Date Night will also move forward a week, taking place on December 8.

In a break from the past, **ZooLights will be**open on New Year's Eve.

These changes are not reflected on the 2016 wall calendar, so please make note of them.



# Night of the Living Zoo

Join us on October 28 for an adults-only Halloween celebration. With live music, craft beer, and a wicked costume contest, it's a great way to help us support the Smithsonian's National Zoo's mission to save species. As a member, you can buy tickets first, on September 16.

Missing the fun would be a grave mistake. Sponsored by LivingSocial.

October 28, 2016 • Get ready, tickets sell fast! • fonz.org/NOLZ



## **Nothing to Yawn About**

Put a sleepy lion and a wide-awake photographer together, and you get a gorgeous glimpse of life at the Zoo's Great Cats exhibit. FONZ Photo Club member David L. Crooks was so taken by the sight that he snapped 30 shots as the young lion opened his mouth wider and wider.

This image, Crooks's favorite because it captures the animal's eye, won a best-in-show award for its category from the Northern Virginia Photographic Society.

Crooks also took the stunning sea lion photo which appeared in last issue's "Look!" portfolio. Unfortunately, the caption got his first name wrong, which we regret.

#### Technical Notes —

CAMERA: CANON 7D MARK II; LENS: SIGMA 50-500MM; **FOCAL LENGTH:** 500 MM; **ISO:** 800; **EXPOSURE:** 1/800 SEC AT F/6.3

#### Share Your Photos!

Smithsonian Zoogoer welcomes FONZ members' submissions of photos taken at the Zoo. Please send photos to Zoogoer@si.edu or post to @FONZNationalZoo on Twitter, Instagram, or Facebook. Your photo may be featured on the Zoo View page.

Join the Club! Membership in the FONZ Photo Club is open to photographers of all skill levels. The group meets monthly to hear guest speakers and to share and discuss members' work. Learn more at fonz.org/photoclub.



# BOO AT THE ZOO

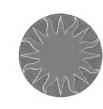
sponsored by Mars Chocolate NA

OCTOBER 21, 22 & 23

JOIN US for Washington DC's favorite not-so-spooky Halloween haunt, Boo at the Zoo. With more than 40 treat stations, animal demonstrations, jugglers, and musicians, this frightfully fun evening is a treat for the whole family. Best of all, it's a great way to help us support the Smithsonian's National Zoo's mission to save species. As a member, you can buy tickets first, on September 9. \$20 FONZ members; \$30 non-members. FONZ.ORG/BOO

**LEAD SPONSOR: MARS CHOCOLATE NA.** Additional sponsors: BIG 100.3, Big Bus Tours, The Coca-Cola Company, Comcast, FedEx, GEICO, HOT 99.5, HBP Printing, 97.1 WASH-FM, Washington Parent, The Washington Post, and 98.7 WMZQ.

Friends of the National Zoo, PO Box 37012, MRC 5516, NW, Washington, DC 20013-7012, WWW.fonz.org



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Thank you for being a FONZ member.

Your membership supports animal care, science, conservation, and more.

